

CIB-T105X Serial No. 09/129,298

REMARKS

Claims 1-4 and 8-27 were previously and are currently pending in the subject application. By this Amendment, the applicants have amended the Specification to include a reference to the claimed priority document. No new matter is involved with this amendment.

112 Rejection, 1st Paragraph - Written Description

Claims 1-4 and 8-27 remain rejected under 35 USC 112, first paragraph for allegedly lacking enablement for any genes other than the ALS or GFP genes exemplified in the Specification. This rejection is respectfully traversed.

In particular the Examiner has not found Applicants prior arguments to be persuasive because the claimed process has not been shown to be predictable and post filing art teaches that mismatch repair in plants does not operate in the predictable manner of that of mammalian and fungal cells. This argument is flawed. First of all, mismatch repair in all organisms, by definition, makes mistakes. Otherwise, we would never see a natural or man-made mutation. MISTAKES are an inherent property of mismatch repair. Spontaneous mutations validate that mismatch repair is inherently error prone. Plant mismatch repair is no less predictable than mismatch repair seen in mammalian or fungal cells. The performance efficiency of the mismatch repair may vary between organisms but they are no less predictable because the mismatch repair does in fact work. What is important is that the molecules of the present invention engage the mismatch repair system with predictable reliability. This has been demonstrated by the examples given in the specification and numerous publications by artisans with ordinary skill in this art. The proof that it works is that routine methods can be used to identify the proper mutants from the undesired mutants. The presently claimed process is predictable.

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Desired mutants can be made and identified. Once made, routine experimentation is used to identify the desired mutants. An analogy to the chemical arts can be made. If a chemical process produces the desired compound at a rate of 60% with the production of 40% by-products then that chemical process or reaction is certainly "predictable" and also would satisfy the 112 requirements. The desired compound is recovered from by-products in a manner analogous to the means whereby the desired mutants of the present invention are identified and isolated. Just because an error in mismatch repair "might" occur doesn't mean that the presently claimed process is not enabled.

Additionally, US Patents 5,731,181 and 6,528,700 both contain generic claims to gene repair methods that are not limited to specific genes exemplified in their specifications. The '181 patent has a priority date of June, 17, 1996 and the '700 patent claims the benefit to Nov. 18, 1997. It is noted by Applicants that the '700 patent has a priority date about 3 months later than the present application which claims benefit to a provisional application filed Aug. 5, 1997. The Applicants are unaware of any art published between August and November 1997 which would justify the issuance of the generic claims of the '700 patent as being enabled while at the same time rendering the presently pending claims not enabled.

The applicants respectfully request reconsideration and withdrawal of the rejection set forth under 35 U.S.C. §112, first paragraph.

102 Rejection - Svab *et al.*

Claims 1 and 16 remain rejected under 35 USC 102(b) as being anticipated by Svab *et al.* 1990 (*Proc. Natl. Acad. Sci. USA* 87:8526-8530). The

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Applicants respectfully traverse this rejection.

The presently claimed process encompasses mismatch repair mechanisms to make targeted mutations in known plant genes. Svab et al employ nuclear transformation (transfection) to insert a complete expression cassette randomly somewhere in the plant nuclear genome. These two processes have little, if anything, in common. The recombinagenic oligonucleobases of the present invention contain RNA and modified RNA. RNA cannot be present in a recombinant molecule as known in a nuclear transformation expression cassette. While the word "recombinagenic" has been used by the Applicants, the context (and definition) in which it is used clearly differentiates the claimed process from nuclear transformation. It is well known that an applicant can be his own lexicographer. For these reasons Svab et al cannot possibly support a novelty rejection.

The applicants respectfully request reconsideration and withdrawal of the rejection set forth under 35 U.S.C. §102(b).

103(a) Rejection - Kmiec '181 in View of Dunder et al

Claims 1-4 and 8-27 have been rejected under 35 USC 103(a) for being unpatentable over Kmiec (U.S. Patent No. 5,731,181) in view of Dunder *et al.* (in Gene Transfer to Plants, 1995, Potrykus and Spangenberg, Eds., Springer Verlag publisher, Chapter 15, pages 127-138) and in view of Applicant's admission. This rejection is respectfully traversed.

As stated above in the Applicants' arguments to the 102 rejection, the fact that the Applicants used the term "recombinagenic" in describing their small molecules to achieve mutations via mismatch repair should not be used against Applicants by using nuclear

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transformation art to reject the present claims directed to a process of making targeted mutations. Because of the pioneering status of the present invention, at the time the present invention was made there was no nomenclature available particular to gene repair in plants. The present claim term "recombinagenic oligonucleobase" is different than the recombinagenic nucleotides used in nuclear transformation as seen in the definition provided in Section 4.1 (pp. 4-7) of the Specification. Therefore, the nuclear transformation art of the Dunder et al reference cannot be properly combined with the Kmiec '181 patent relating to making localized mutations via mismatch repair. The differences in the chemistry of the two different arts (small chemically-modified oligonucleotides vs. large, pure DNA-based expression cassettes) prohibit the combination of the Kmiec '181 patent and the Dunder et al reference. The 103 rejection is flawed.

The applicants respectfully request reconsideration and withdrawal of the rejection set forth under 35 U.S.C. §103(a).

In view of the above amendments and remarks, allowance of this application is now believed to be in order, and such actions are hereby solicited. If any points remain in issue which the Examiner feels may be best resolved through a personal or telephone interview, the Examiner is kindly requested to contact the undersigned at the telephone number listed below.

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The Commissioner is hereby authorized to charge any fees under 37 C.F.R. §§1.16 or 1.17 as required by this paper to Deposit Account No. 19-0065.

Respectfully submitted,



John M. Sanders

Patent Attorney

Registration No. 30,126

Phone No.: (858) 385-9496

Fax No.: (858) 613-0917

Address: Saliwanchik, Lloyd & Saliwanchik
A Professional Association
2421 NW 41st Street, Suite A-1
Gainesville, FL 32606-6669

JMS/la